

AMENDMENTS TO THE CLAIMS

Claims 1-14 (Canceled)

15. (Withdrawn) A method for installing muntin bars or muntin gratings into a frame, i.e. a spacer frame of an insulated glass window by using the device according to any one of claims 1 to 14, i.e. including a device for realizing an accurate graded positioning of the muntin bars or the muntin grating within the spacer frame and also for an accurate junction provided there between and comprising the steps of

positioning a spacer frame of desired size onto the tie-bars of the mounting frame and

fixing a plastic terminal plug within one end of a muntin bar, i.e. a muntin grating end, so that an end flange of the plug abuts against the inner side of the spacer frame, and

fixing said plug, i.e. the muntin bars or the muntin cross fixed thereto at determined positions to the spacer frame profile by screwing or shooting screws or shooting clamps through the hollow profile of the spacer frame from the outside thereof, respectively, which screws or shooting clamps are provided by means of a screwing apparatus or a shooting device movably supported relative to the spacer frame.

16. (Withdrawn) A method according to claim 15, wherein the screwing apparatus or the shooting device is automatically positioned relative to the spacer frame.

17. (Withdrawn) A method according to claim 15, wherein positioning the muntin comprises the step of

fixing the muntin bar or the muntin grating to the spacer frame by means of a gripping jaw device which is to be adjusted by means of a pneumatic or hydraulic plunger which in turn is fixedly connected to a claw unit and

scanning the surface of the spacer frame supported by the positioning laying-on device for the frame relative to the screwing apparatus or the shooting device.

18. (Withdrawn) A method according to claim 17, further comprising the step of coordinating the scanning operation with the movement of the tie-bars at which the screwing apparatus or the shooting device is arranged, wherein the movement of the tie-bars is especially performed vertically and horizontally with respect to the spacer frame and

triggering the movement of the sliding block of the screwing apparatus or the shooting device against the outer wall of the spacer frame profile after having reached a determined screwing- or shooting position and thus

triggering the screwing or shooting operation.

19. (Withdrawn) A method according to claim 15, further comprising the step of automatically supplying said screws, nails or fixing clamps of the screwing apparatus or the shooting device by means of a air hose connection.

Claims 20-33 (Canceled)

34. (New) A device for installing a muntin into a spacer frame comprising:

a mounting frame operable to be inclined with respect to a vertical plane and including two parallel, horizontally arranged fixed frame bodies and two parallel side bodies arranged perpendicular to the two frame bodies and connecting the fixed frame bodies;

a device for positioning a muntin within a spacer frame, the device including tie-bars and an apparatus for arranging and fixing the muntin in the spacer frame, the tie-bars being movably supported by the mounting frame and including two upstanding tie-bar bodies and two transverse tie-bar bodies, the upstanding tie-bar bodies being supported by the frame bodies and the two transverse tie-bar bodies being positioned perpendicular to the upstanding tie-bar bodies and supported by the side bodies.

35. (New) A device according to claim 34, wherein the mounting frame is inclined between 0 and 90 degrees with respect to a vertical plane.

36. (New) A device according to claim 34, wherein at least one of the upstanding tie-bar bodies is movably supported by the mounting frame and at least one of the transverse tie-bar bodies is movably supported by the mounting frame.

37. (New) A device according to claim 34, further comprising a basis frame onto which the mounting frame is arranged, wherein the basis frame is provided with at least one frame stretcher pivotally connected to the mounting frame so that the mounting frame can be adjusted with respect to the vertical plane.

38. (New) A device according to claim 37, wherein the basis frame comprises footings.

39. (New) A device according to claim 38, wherein the footings are adjustable with respect to their length.

40. (New) A device according to claim 34, wherein the two transverse tie-bar bodies form an upper and a lower tie-bar, respectively, and are arranged above and beneath the upstanding tie-bar bodies that are positioned perpendicular thereto and that form a left-hand side and a right-hand side tie-bar, respectively.

41. (New) A device according to claim 34, wherein the tie-bar bodies comprise a movably supported fixing device for enabling the spacer frames having different sizes to be positioned and centered along with the respective muntin.

42. (New) A device according to claim 34, wherein the apparatus for arranging and fixing the muntin is positioned on at least one of the tie-bar bodies.

43. (New) A device according to claim 34, wherein the apparatus for arranging and fixing the muntin is positioned on at least one of the tie-bar bodies and the apparatus comprises a device for driving a fastener, the device for driving a fastener thereby being movably supported relative to the spacer frame and the muntin.

44. (New) A device according to claim 43, further comprising a controlling unit, the controlling unit being operable to automatically move the tie-bar bodies and the apparatus for arranging and fixing the muntin with respect to the size of the spacer frame and the position of the respective muntin to be installed into said frame, wherein said movements can be performed simultaneously or successively.

45. (New) A device according to claim 42, wherein the apparatus for arranging and fixing the muntin is provided as an independently working and adjustable unit comprising:

a device for driving a fastener;

a movably carried distance positioning supporting device for the muntin to be fastened;
and

a positioning laying-on device for the spacer frame to be able to preposition an end of the muntin relative to an inner surface of the spacer frame.

46. (New) The device according to claim 45, wherein the device for driving a fastener comprises a screwing device.

47. (New) The device according to claim 45, wherein the device for driving a fastener comprises a shooting device.

48. (New) The device according to claim 47, wherein the shooting device is a pneumatic hammer.

49. (New) A device according to claim 45, wherein the distance positioning supporting device comprises a gripping jaw device for fixedly gripping the muntin in a position in which the muntin is to be fastened with respect to the spacer frame, the gripping jaw device being adapted to grip the muntin during a fastening process.

50. (New) A device according to claim 45, wherein the distance positioning supporting device functions to center the muntin relative to the fastening device.

51. (New) A device for installing a muntin into a spacer frame comprising:
a mounting frame that is operable to be inclined with respect to a vertical plane;
a basis frame onto which the mounting frame is arranged having a footing and a frame stretcher, the footing being adjustable with respect to their length, the frame stretcher being pivotally connected to the mounting frame so that the mounting frame is adjustable with respect to a vertical plane; and

a device for positioning a muntin within a spacer frame, the device including tie-bars and an apparatus for arranging and fixing the muntin in the spacer frame, the tie-bars being movably supported on the mounting frame for use in fixing and machining spacer frames of different sizes together with the muntin.

52. (New) A device according to claim 51, wherein the mounting frame is inclined between 0 and 90 degrees with respect to a vertical plane.

53. (New) A device according to claim 51, wherein the mounting frame includes two parallel, horizontally arranged fixed frame bodies and two parallel side bodies arranged perpendicular to the two frame bodies and connecting fixed frame bodies and the tie-bars include two upstanding tie-bar bodies and two transverse tie-bar bodies, the two upstanding tie-bar bodies being supported by the frame bodies and the two transverse tie-bar bodies being positioned perpendicular to the upstanding tie-bar bodies and supported by the side bodies.

54. (New) A device according to claim 53, wherein at least one of the upstanding tie-bar bodies is movably supported by the mounting frame and at least one of the transverse tie-bar bodies is movably supported by the mounting frame.

55. (New) A device according to claim 53, wherein the two transverse tie-bar bodies form an upper and a lower tie-bar, respectively, and are arranged above or beneath said upstanding tie-bar bodies that are positioned perpendicular thereto and that form a left-hand side and a right-hand side tie-bar, respectively.

56. (New) A device according to claim 51, wherein the tie-bar bodies comprise a movably supported fixing device for enabling the spacer frames having different sizes to be positioned and centered along with the respective muntin.

57. (New) A device according to claim 51, wherein the apparatus for arranging and fixing the muntin is positioned on at least one of the tie-bar bodies.

58. (New) A device according to claim 51, wherein the apparatus for arranging and fixing the muntin is positioned on at least one of the tie-bar bodies and the apparatus comprises a device for driving a fastener, the device for driving a fastener thereby being movably supported relative to the spacer frame and the muntin.

59. (New) A device according to claim 51, further comprising a controlling unit, the controlling unit being operable to automatically move the tie-bar bodies and the apparatus for arranging and fixing the muntin with respect to the size of the spacer frame and the position of the respective muntin to be installed into said frame, wherein said movements can be performed simultaneously or successively.

60. (New) A device according to claim 51, wherein the apparatus for arranging and fixing the muntin is provided as an independently working and adjustable unit comprising:

a device for driving a fastener;

a movably carried distance positioning supporting device for the muntin to be fastened;

and

a positioning laying-on device for the spacer frame to be able to preposition an end of the muntin relative to an inner surface of the spacer frame.

61. (New) The device according to claim 60, wherein the device for driving a fastener comprises a screwing device.

62. (New) The device according to claim 60, wherein the device for driving a fastener comprises a shooting device.

63. (New) The device according to claim 62, wherein the shooting device is a pneumatic hammer.

64. (New) A device according to claim 60, wherein the distance positioning supporting device comprises a gripping jaw device for fixedly gripping the muntin in a position in which the muntin is to be fastened with respect to the spacer frame, the gripping jaw device being adapted to grip the muntin during a fastening process.

65. (New) A device according to claim 60, wherein the distance positioning supporting device functions to center the muntin relative to the fastening device.